winter. Soon after hatching a brood the lobster may moult, but eggs are not laid again until at least another year.

When the young lobster hatches from the egg it moults, and in artificially hatched lobsters large numbers die on account of inability to pass this moult. After six or seven days the second moult occurs. Young lobsters swim at the surface six to eight weeks, and then disappear entirely from the surface.

The second paper deals with the growth of the reproductive organs, and the stages as far as the nauplius-like condition. The greatest differences appear in the segmenting eggs. The egg nucleus, with its surrounding protoplasm divides near the center of the egg, and its products wander to the surface, and the periphery breaks up into irregular cells. Until about 40 hours after fertilization the peripheral yolk is entirely segmented. About 30 segments are present. In all the segmentation stage occupies three days. By the end of the fourth day the invagination stage is reached. This is followed by the keel stage, which lasts about four days. At the beginning of the tenth day the nauplius appendages begin to bud, first the first pair of antennæ and mandibles together, and a little later the second pair of antennæ.

ENTOMOLOGY.

The "Arrow Weed" and Mexican "Jumping Bean' Insect.—It has long been known that the Indians in Mexico make a powerful poison from some native plant, which poison, in a milder form, is also used as a cathartic. It has also long been known that seeds possessing the curious power of jumping are produced upon the same plant in Mexico, and are sent to other parts of the world, forming quite an article of commerce. The exact nature of this plant, however, has hitherto remained a mystery. At a recent meeting of the Washington Entomological Society, Professor C. V. Riley read an interesting paper on the determination of the plant upon which these "jumping seeds" are produced. In the Transactions of the St. Louis Academy of Sciences for 1875 is an account of *Carpocapsa saltitans* Westwood, the insect which causes the saltation of the "beans," he had called attention to the fact that the particular euphorbiaceous plant upon which these seeds are produced was not determined. Westwood, in his original description of *Carpocapsa saltitans*, states that the plant is known to the Mexicans as Calliguaja, and in a recent

letter to Prof. Riley from M. Chretien, of the French Entomological Society, the plant was referred to as a Mexican euphorbiaceous plant called *Colliguaja odorifera* Moline. About this time Mr. J. M. Rose, of the botanical division, brought to Prof. Riley specimens of plants recently collected by Dr. Edward Palmer, who sent with the plants specimens of the capsules, thus rendering it certain that the jumping bean occurs on this particular plant. It turns out to be undescribed, has been referred to the genus Sabastiania, and will be described by Mr. Rose as *S. palmeri.* Prof. Riley decides that the reference given by M. Chretien is erroneous, as Bentham and Hooker give *Colliguaja odorifera* as from South America, and there is no record of it from Mexico. Comparison of the specimens in the department herbarium showed that while evidently closely allied, Colliguaja is quite distinct from Sebastiania, which renders it rather remarkable that the name given by the Mexicans to the plant should be identical with that adopted for the South American genus. The name seems to be of Chilian origin, and was doubtless introduced into Mexico by the Spaniards. It is probably applied to various euphorbiaceous species having the same poisonous attribute, whether occurring in Mexico or south of the equator.

A closely allied species of Sebastiania from the same localities (as yet undescribed, but which Prof. Watson will describe as *S. pringlei*) also shows evidence of being infested with *Carpocapsa saltitans*, and a third species (*S. bilocularis*) is infested by an allied larva of a moth which Prof. Riley describes by the name of *Grapholitha sebastiania.* There is therefore good evidence that the insect causing the saltations of the "beans" develops in the capsules of at least two different species of the genus Sebastiania. The young larva doubtless hatches from an egg laid externally on the capsule, and penetrates the same while quite young, very much as in the case of the common pea weevil. Dr. Palmer found *S. palmeri* only in certain cañons near Alamos, where it is popularly known as *palo de la flecha cuero de las simellas brincaderos* (arrow tree which produces the jumping beans). The plant exudes a good deal of milky juice, which is what the Indians use on their arrow-heads. It is a loose-growing shrub, from five to eight feet high, the wood very hard, and the milky juice readily crystallizing into a clear, white, brittle substance. In the appearance of the wood it reminds one somewhat of our witch-hazel, and in the leaf of a broad-leaved willow. As in the case of other Euphorbiaceæ, the carpels, or each of the three parts of the capsule, dehisce, or suddenly split when ripe; but when the larva inhabits the same the parts fail to

separate, being kept together by the carpet of silk which the larva spins on the inside. The peculiar jumping motions of the carpel are thus produced, as first described by Prof. Riley in the Transactions of the St. Louis Academy aforementioned. The full-grown larva, by its holding fast to the silken lining by its anal and two hind pair of abdominal pro-legs, which have very strong hooks, then draws back the head and fore body, the thoracic parts swelling and the thoracic legs being withdrawn. The contracted parts being then suddenly released, the larva vigorously taps the wall of its cell with its head, sometimes thrown from side to side, but more often brought directly down as in the motion of a wood-pecker when tapping for insects. The seed will thus move whenever warmed for several months during the winter, because, as with most tortricid larvæ, this one remains a long time in the larval state after coming to its growth and before pupating.

Remarkable as are the movements of this seed, Prof. Riley remarked that they are thrown into the shade by a little jumping gall produced on the leaves of our post-oak and other oaks. This is a little, spherical, seed-like gall, and the insect within, which produces the fly known as *Cynips saltatorius*, can make it bound twenty times its own length. Here the motion is imparted by the insect in the pupa, and not in the larval state.—*Scientific American, June 13th, 1891.*

ARCHEOLOGY AND ETHNOLOGY.[1]

The International Congress of Anthropology and Prehistoric Archeology of Paris, 1889.—(*Continued from page 592*).

Fifth Question: "The Relation Between the Civilization of Hallstadt and Other Danubian Stations, and those of Mycenæ, Tirynthe, Hissarlik, and the Caucasus."

This question brought up the most excited, because the only personal, discussion of the congress. Captain E. Boetticher presented a paper criticising the excavations made at Hissarlik by M. Schliemann. Captain Boetticher was of opinion that the hillside of Hissarlik which had been explored by M. Schliemann did not contain, as M. Schliemann thought, the débris of the walls or the temples or palaces, but that it had been a necropole or crematory, a place for incineration or cremation, and that the superposed territory contained the cinerary

[1] Edited by Dr. Thomas Wilson, Smithsonian Institution, Washington, D. C.